



ANATOMICAL VARIATION IN MID THIGH BIFURCATION OF SCIATIC NERVE AND ITS CLINICAL SIGNIFICANCE

Anatomy

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ABSTRACT

INTRODUCTION : Sciatic Nerve (SN) is the nerve of the posterior compartment of thigh formed in the pelvis from the ventral rami of the L4 to S3 spinal nerves. It leaves the pelvis via the greater sciatic foramen below piriformis and divides into Common Peroneal Nerve (CPN) and Tibial Nerve (TN) at the level of the upper angle of the popliteal fossa. Higher division of the sciatic nerve is the most common variation where the Tibial nerve and Common peroneal nerve divide at various level from pelvis to the back of thigh.

AIMS AND OBJECTIVES: To study the variation in division of sciatic nerve at different levels in the back of thigh . It has clinical and surgical implications.

METHODOLOGY: This study was conducted in Department of Anatomy of Osmania medical college , koti, Hyderabad .During routine undergraduate dissection of total 22 human cadavers properly embalmed and formalin fixed. 20 males and 2 females cadavers (i.e., 0n 44 lower limbs) were dissected during the study .The cadavers with visible trauma or prior surgeries were excluded from Routine study .During the dissection of posterior compartment of thigh, sciatic nerve was identified and carefully dissected. At first, origin was confirmed and then, it was traced down. The variation was identified , noted and photographed. The results were analysed and compared with previous study.

RESULTS: Mid thigh level bifurcation of sciatic nerve was identified in right lower limb of one cadaver . The percentage of higher level of bifurcation among 44 cadavers is 2.5%.

CONCLUSION: Sciatic nerve is the main nerve of the lower limb. Considering its variation in bifurcation at different levels is essential for Surgeons, during above and below knee amputations. Orthopaedicians ,in giving limb prosthesis, Anesthesiologists, while giving nerve blocks. Plastic surgeons Anatomist and researchers.

KEYWORDS

Sciatic Nerve, Greater Sciatic Foramen , Tibial Nerve, Common Peroneal Nerve.

INTRODUCTION:

Sciatic nerve is one of the thickest nerve in the body. It is formed from lumbar plexus, it supply most of the muscles of posterior compartment of lower limb. It consists of tibial component and common peroneal component, both of which are initially a common trunk. The tibial component derived from ventral branches of ventral rami of L4, L5, S1, S2, S3 and common peroneal component from dorsal branch from ventral rami of L4, L5, S1, S2. Sciatic nerve emerges through greater sciatic foramen below piriformis and coming inferolaterally descends beneath the gluteus maximus midway between Ischial tuberosity and greater trochanter. In gluteal region it rests on dorsal surface of body of ischium separated from nerve to quadratus femoris, tricipital tendon of obturator internus with superior and inferior gemelli, quadratus femoris and adductor magnus. At the back of the thigh nerve is crossed superficially by long head of biceps femoris, close to the upper angle of popliteal fossa divides into tibial and common peroneal nerve. Hence study of this nerve and its variation is important in clinical and surgical aspect.

MATERIAL AND METHODS:

This study was conducted in Department of Anatomy Osmania medical college, koti, Hyderabad. During routine undergraduate dissection of human cadavers (in 44 lower limbs) 20 males and 2 females cadavers were dissected during the study. The cadavers with visible trauma, pathology or any surgeries were excluded from study. Routine dissection of lower limb was followed. During the dissection of posterior region of thigh, sciatic nerve was identified and carefully dissected. At first, origin was confirmed and then it was traced down. The variation was identified , noted and photographed. The results were analysed and compared with previous study.

RESULTS: In the study, Unilateral mid thigh bifurcation of sciatic nerve into tibial and common peroneal nerve was found in one male cadaver. The percentage of bifurcation of higher division of sciatic

nerve is 2.5% .The mid thigh division of sciatic nerve was recorded as 8.5 cm from the popliteal crease which is a rare anomaly.

DISCUSSION:

According to different study, it shows that there are many variations in sciatic nerve division especially in higher divisions. There are different types of high divisions of sciatic nerve within pelvis, in the middle of the thigh, usually bilateral and if it is unilateral then other side will mostly remain normal.

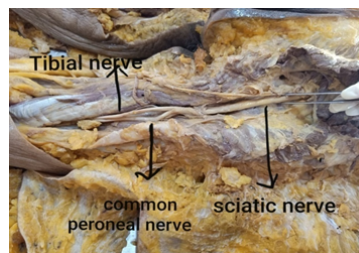


Fig: Dissected on right Thigh showing bifurcation of sciatic nerve.

CONCLUSION:

The anatomical knowledge regarding variation about the level of division of the sciatic nerve and the location where it divides is of greater importance to surgeons and anesthetist. This knowledge will not only help surgeons to take care during above and below knee surgeries, but helps to plan accordingly during various surgical interventions and management of this region. This high division of sciatic nerve in the middle of the thigh is important while giving popliteal block and in knee arthroplasties. The normal point is 4 to 7 cm above the popliteal crease. It is useful for Anesthetic to anesthetize the two third of the lower leg . with a high division of sciatic nerve , this becomes difficult and consequently foot surgery becomes a challenge

for surgeons This also motivates radiologist to repeat MRI on other side, as there can be differences on two sides

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